
MEDICAL EXAMINER.

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ON THE MORTALITY AFTER AMPUTATIONS.

By MEREDITH CLYMER, M. D.

IN an analysis of Mr. Malgaigne's essay on the "Mortality after Amputations," recently published in this journal, it was proposed to compare his results with others obtained at different periods and in various places. A partial attempt to redeem this pledge will be made in the following pages. The practical utility of Mr. Malgaigne's paper was materially impaired by the omission of the cause of death in his cases. Unfortunately, the immediate lesion producing death has in no instance been stated in the imperfect data which form the ground-work of the present article. This all-important question may form a subject of inquiry at a future period.

After the battle of Fontenoy, Boucher declared that he lost nearly two-thirds of his amputations, and that the mortality was especially great in those of the leg. (*Mem. de l'Acad. de Chirurgie*, t. ii., p. 304.) Faure, in a paper read before the Academy at the same time, gave the preference to secondary amputations, and stated that in six cases of his own he was entirely successful, and that Read, of Valenciennes, out of 11 lost only 2. By immediate amputations, on the contrary, one-third was not saved; for after the battle of Fontenoy, out of 300 primary amputations, 30 or 40 only were successful. (*Prix de l'Acad. de Chirurgie*, t. iii., p. 492, 498, 518.) Bilguer, a surgeon of the Prussian army, affirms, that during the first part of the seven years war, that hardly more than one or two were saved out of all the amputations; and he asks whether the operation might not be in a measure abandoned. Benjamin Bell says, that even after the invention of the tourniquet more than one-half of the patients who submitted to amputation perished. He adds, however, that with the improvements then known, he does not believe that 1 in 20 perish in hospitals, and probably a smaller number in private practice.

In 1797, the late Baron Larrey stated that on the 27th and 30th brumaire he performed 13 primary amputations, and lost only 2. Mr. A. Blandin, his aide-major on that occasion, says, in a dissertation published at Strasburg, in 1803, that out of 5 [traumatic?] amputations you may save 3, under the most favourable circumstances.

In 1814, Mr. Roux reported a series of 22 great operations performed by him at la Charité. Of these 22, there were 2 of the arm, 1 of the forearm and 7 of the leg, and for these 10 he had 3 deaths. Of 12 amputations of

the thigh there were 3 where reunion had not occurred, and of these 1 death; there remain 9 amputations of the thigh, with 4 deaths.

At the battle of New Orleans, Mr. Guthrie had 45 immediate amputations, 7 deaths; 7 secondary amputations, 5 deaths.

After the battle of Toulouse, the same surgeon had 47 immediate amputations, 9 deaths; 51 secondary amputations, 21 deaths. Thus, out of 150 amputations, 42 deaths, or more than one-fourth.

Mr. Marjolin, in 1814, at Salpêtrière, had 14 amputations from gun-shot wounds, and saved but 1.

In September, 1829, Mr. Emery read before the Academy of Medicine a note from Mr. Del Signore, surgeon of the Egyptian navy at the battle of Navarino;—the results were as follows:

31 immediate amputations,	1 death.
29 secondary amputations, from 2d to 3d day,	11 deaths.
8 secondary amputations, from 10th to 12th day,	2 deaths.

In 1830, Dupuytren gave in a clinical lecture the following results of his practice:

30 amputations with immediate reunion,	6 deaths.
29 amputations with immediate reunion,	9 deaths.

Larrey, in one of his publications says, after 20 years of war, that he saved three-fourths of his amputations.

Mr. Paul Dubois (*Lancette Française*, 9 Mars, 1840,) states that his father performed, in the course of three years, at the *Maison Royale de Santé* at Paris, 28 amputations; 13 of the thigh, 12 of the leg, 2 of the arm, and 1 of the forearm. In 3 cases immediate reunion did not take place, no deaths. In 25 cases, with union by the first intention, 3 deaths. Mortality one-tenth.

From Mr. Malgaigne's paper we learn that the mortality in the Polish army, during the insurrection of 1831, was frightful, nearly all the amputations dying. He does not state the cause of death, but leads us to infer that it was from the shock sustained by the system, and metastatic abscess. He says death rarely took place from hæmorrhage. The surgeons of the Polish army at that time were from every country of Europe, and, of course, the practice was very varied.

Mr. Mènière, in his work on the operations at the *Hôtel Dieu*, during the revolution of July, 1830, gives the following as the results of the great traumatic amputations:

11 amputations of the thigh,	9 deaths.
3 " " leg,	3 "
10 " " shoulder and arm,	5 "

Thus, in Dupuytren's hands, out of 10 amputations of the arm, one-half

died, and out of 14 of the inferior extremity, 12 died: out of 24 amputations, 17 died, whilst Larrey states his mortality at the same period to have been 7 out of 16.

Roux, at la Charité, for 10 immediate amputations had 3 deaths; 3 amputations of the inferior extremity, 1 death; for 7 of the superior extremity, 2 deaths; and 4 deaths for 4 secondary amputations. Total, 14 amputations, 7 deaths.

After the *émeute* of 1832, Richerand, at St. Louis, in 10 amputations of the inferior extremity had 8 deaths; 2 remaining under treatment; 5 of the superior extremity, 3 deaths, and 2 under treatment. Total, (at least,) 11 deaths out of 15 cases. They were nearly all primary amputations, and all the result of gun-shot wounds.

In resuming we find 69 amputations, 32 deaths. For the inferior extremity alone, 40 amputations, and 28 deaths.

Mr. Baudens, in the expedition against Constantine, out of 29 amputations lost 24.

According to Mr. Malgaigne, the mortality at the Enfants Malades at Paris, among the children after amputation, is fearfully great.

So far our inquiries have been directed solely towards the mortality after amputation following gun-shot wounds of the extremities. We shall now refer to the results which have been obtained in the various civil hospitals of Europe and this country.

During the year ending August, 1840, Mr. Velpeau, out of 18 great amputations, lost but 1. He stated in his lecture at that time, that in a previous year, out of 26 amputations, he lost only 2. In another year he lost 6 out of 21, and in another 4 out of 19. Dr. W. Poyntell Johnston states (*Med. Examiner*, O. S., vol. iii, p. 300,) that out of 11 capital amputations performed by Velpeau during the clinical year, ending August, 1837, 1 only died—an amputation through the knee-joint.

Chelius, the Professor of Surgery at Heidelberg, saved 27 out of 29 amputations.

In 1840, at the Hôtel Dieu, in the service of Mr. Roux, there were 18 capital amputations and 8 deaths, distributed as follows:—of the thigh, 8 cases and 4 deaths; of the leg, (at the place of election,) 2 cases and 1 death; of the leg, (above the malleoli,) 4 cases and 1 death; of the arm, 3 cases and 2 deaths; of the forearm, 1 case and 0 death.

In 1841, in the same service, there were 17 great amputations and 8 deaths, distributed as follows:—of the thigh, 8 cases and 5 deaths; of the leg, (at the place of election,) 5 cases and 2 deaths; of the leg, (above the malleoli,) 1 case and 1 death; of the forearm 3 cases and 0 death.

These two years give 35 great amputations, and result in 16 deaths, and 18 recoveries. This result may be considered as favourable, in comparison with the preceding years; for since 1836, there have been at the Hôtel Dieu, in all the surgical services united, 178 amputations, with 104 deaths and 74

recoveries. Of these 178 amputations, there were 63 amputations of the thigh, of which there were 43 deaths, and 20 recoveries.*

The above numbers are too few to establish any rigorous results, but the progression would be from the most dangerous to the least dangerous amputation—arm, thigh, leg, and forearm. The importance of distinguishing the lesion necessitating the amputation is acknowledged; in the above series we find the traumatic amputations were 11, and 9 deaths; they are distributed as follows: thigh 4, 4 deaths; leg 3, 3 deaths; arm 2, 2 deaths; forearm 2, 0 deaths. Of the pathological amputations there were 21, and 7 deaths; distributed thus: thigh 12, deaths 5; leg 9, 2 deaths; arm 1, 0 deaths; forearm 2, 0 deaths.

From the statistics of the Glasgow Infirmary, published by Dr. Lawrie, we find that out of 276 great amputations, there recovered 176, or 63.7 per cent., and died, 100, or 36.3 per cent.; the deaths to the recoveries being as 1 to 2.75. Of these there were 153 pathological amputations, of which number 118, were cured, or 77.1 per cent., and 35 died, or 22.9 per cent. Of the traumatic amputations, 77 were primary, of which 39 died; and 46 secondary, of which 26 died. The proportionate mortality among the males to that among the females, was as 1.6 to 3.3.

According to Dr. Norris, the general mortality in the Pennsylvania Hospital, from amputations, was 1 in 3 7-11ths. In traumatic amputations the mortality was 1 in 3 2-11ths, in chronic diseases it was 1 in 6½. Immediate traumatic amputations were less fatal than secondary ones, the mortality in the former being 1 in 3 2-11ths, whilst in the latter it was 1 in 2 6-7ths. Amputation of the lower member was much more fatal than that of the superior, the mortality after the former, being 1 in 2 15-16ths; after the latter, 1 in 6 2-5ths. Dr. N. says that during a period of 10 years, none of the lesser amputations were attended by death.

* Experience seems daily to prove the comparative safety of resection over amputation, in such cases as admit of the former operation. Its applicability is confessedly limited; and however brilliant and useful have been its results, when applied to the superior extremity, its danger to the inferior member must be generally admitted. Within the last two years Mr. Roux has performed at the Hôtel Dieu resection of the elbow-joint 6 times, and has had but 1 death; this latter occurring on the sixteenth day, from an extensive erysipelas. Since August, 1840, Mr. Roux has replaced the incision in H, employed by surgeons generally since Moreau in this operation, by one in T, made on one side of the joint. This modification, Mr. R. thinks, facilitates the dressing, without causing the slightest movement in the articulation.

A year since, at the Hôtel Dieu, a girl of 19 years of age was to be seen, who had submitted to resection of the elbow-joint fourteen years previously, and who was then able to use perfectly her arm and hand. MM. Maunoury and Thore mention recently, in the Gazette Medicale, a similar case, seen two years subsequent to the operation, where motion was entirely reestablished, and the cicatrix solid.

Of 124 amputations, reported by Dr. Hayward, of the Massachusetts General Hospital, there were 37 deaths, or a fraction more than 1 in 4. Dr. H.'s table would show the greater chance of success in amputation for chronic disease, than after injuries. In amputation of the thigh Dr. H. states that more than one-fourth died; whilst in amputation of the leg, the mortality was little more than 1 in 5.

According to the results of the statistics of Mr. B. Phillips, (Med. Examiner O. S. vol. i., page 290,) there was an average mortality of $23\frac{1}{2}$ per cent.

The rate of mortality for the ages, between 9 and 20, according to Dr. Lawrie, is by far the most favourable; whilst that from 60 to 50 is the least so. These results correspond with those of Drs. Norris and Hayward; under 20, both losing only 1 in 13. Mr. Malgaigne's data as already has been said (p. 487) are insufficient to warrant any conclusions on this point.

Of 551 cases of secondary amputations, performed by Mr. Guthrie, 265, or nearly one-half, died; of 291 primary amputations, 24 died, or nearly 1 in 12. All were in consequence of gunshot wounds.

Army surgeons seem to have established as a maxim, the necessity of amputation in all cases of gunshot wounds in the lower extremity. Mr. Ribes expresses, in his essay, his solemn conviction that any delay necessarily endangers the life of the wounded person, and as far as the middle portion of the thigh is concerned, the late Baron Larrey coincides in this opinion. Mr. Malgaigne's sad experience in Poland, induces him to dissent to this doctrine, and he mentions the following incident, as bearing on the question. At a surgical concours, where this point was discussed, Mr. Malgaigne being the interrogator, he expressed the opinion that if his own thigh were fractured by a shot, he would not, weighing all chances, submit to an amputation. Mr. Marjolin, the President, on hearing this avowal, exclaimed with some vehemence, "*nor I either.*"

The opinion of Mr. Ribes would appear to have been formed from the following circumstances. On his return to Paris, in 1814, out of 4,000 patients at the Invalides, he could not find a single case of gunshot wound of the femur, but he saw one case where the thigh had been amputated for this injury. But as it was at that time the custom in the French Army to amputate in all such cases, might it not be legitimately concluded that all had died who had submitted to amputation? From 1814 to 1822, he mentions having seen seven, who had survived the injury, but says nothing of having met any who had survived the operation. Mr. Malgaigne, in his paper, so frequently alluded to, states that he saw, at Warsaw, two cases where the femur was solidly, though viciously consolidated, after this injury, and adds, that he could cite others, which most unaccountably he does not do.

At the siege of Genoa, the leg of Marshal Soult was fractured by a shot; he resisted all the instances made by his surgeon for immediate amputation. He has since made 20 campaigns, and mounts a horse with ease, by means

of the condemned member, and is able to remain, at the age of 73, from six to eight hours in the saddle.

August 28, 1842.

THE MEDICAL EXAMINER.

PHILADELPHIA, SEPTEMBER 3, 1842.

In a late number of the Bulletin of the Royal Academy of Medicine we observe a notice of the death of Dr. DOUBLE, one of the most distinguished of its members. Dr. Double is the author of a large work on Semeiology, published some years since, and of numerous essays and reports made to the Academy of Medicine: but of late years an extended practice drew so heavily upon his time, as to leave him little leisure for the literary labours of the profession. He was, however, so strongly attached by his classical taste to the study of the older and now almost neglected medical writers, that he took a decided part in the discussion which followed the reading of a capital memoir upon the writings of Galen, by M. Dubois, (of Amiens.) Confessing our own sin of comparative neglect of the classical medical authorities, we are not of the number of those who regard the study of the ancients as a futile, because unnecessary pursuit. The tendency of medicine is now practical, eminently so; but are we not wandering away too far from the earlier cultivators of our science? If their facts are now of little value, because we know so much more, we lose the original modes of thought, the earnest reflection which form a good counterpoise to the exactness, but at the same time hardness of our modern authors.

Dr. Pariset, in his eulogium, hints that Dr. Double, like many other physicians, was but an indifferent practitioner in his own case, temporising and trusting to his own biassed judgment, until decided treatment came too late.

At the recent elections in France, the following medical men were elected members of the Chamber of Deputies:—Dr. BOUILLAUD, a clinical professor of medicine in the Faculty of Medicine at Paris, one of the physicians of La Charité, and celebrated as the author of an excellent treatise on the Diseases of the Heart; M. TERNE, the Mayor of Lyons; and M. DEZEIMERIS, the Librarian of the Faculty of Medicine, and the well known bibliographer.

M. AUGUSTE BERARD, Surgeon to the Necker Hospital, has been appointed to the Chair of Clinical Surgery in the Faculty of Paris, vacant by

the death of M. Sansom. This *concours* was celebrated for its brilliancy, and the result will, we doubt not, meet with general approbation. M. BERARD is the brother of the present Professor of Physiology, and his general superiority as a surgeon is incontestible.

Dr. LIEBIG, whose recent investigations and publications in Organic Chemistry have become so justly celebrated, has been elected a corresponding member of the French Institute, in the section of Chemistry of the Academy of Sciences.

BIBLIOGRAPHICAL NOTICE.

A Treatise on Strabismus, with a description of New Instruments designed to improve the operation for its cure, in simplicity, ease, and safety; illustrated by cases. By JAMES BOLTON, M. D., A. M., Member of the Medical Society of Virginia. Richmond, 1842. pp. 36.

This little treatise, dedicated to Dr. J. Kearney Rodgers by "his former pupil," contains a concise account of strabismus and its varieties, with a modification of the received operation for its cure. Dr. BOLTON conceives that the instruments which he employs are such as to facilitate materially the operation. His directions regarding the manipulations, and the after treatment, are precise and clear, and strike us as just. Several cases illustrative of the doctor's views and method are appended.

CLINICAL REPORTS.

Blockley Hospital—Service of W. W. Gerhard, M. D.

Reported by J. L. LUDLOW, M. D., Resident Physician.

Ulceration and Calcareous Concretion at Aortic Valves—Dilatation of Mitral—Hypertrophy—Disease of Kidneys—Arachnitis.

Peter Halk, æt. 33, a German by birth, and by trade a cooper, states that he was healthy till five weeks since, when his abdomen enlarged very suddenly. His appetite is perhaps greater now than previously.

January 25. The patient is anemic; skin pale and bloodless, not jaundiced; eyes clear; countenance anxious; pulse slow, and regular, and full, 75; slight ascites, and œdema of the eyes and lips. *Heart.*—The first sound rough and sharp; second nearly lost in a bellows sound. The impulse of the heart is also increased, and the percussion dull. Respiration vesicular, except at the lower portion of the right lung, where there is a slight subcrepitant rhonchus. The percussion is also dull. Urine high co-

loured and abundant. Albuminous deposit by addition of nitric acid. Tenderness in the right hypochondrium.

R. Ferri Proto-carb. (Valet,) gr. vj. Ter in die.
Senna et Magnes. Sulph. Nocte.

No notes taken until the

2d of March. Yesterday the patient was taken with œdema of the face and eyelids; to-day erysipelatous redness of the left eye; œdema of the legs; febrile excitement increased; pulse more excited; bellows sound of heart more developed; has some diarrhœa.

R. Mist. Oleag.

C. Cups to heart, and iron stopped.

3. Œdema of the face not as great as yesterday, and the erysipelatous blush gradually disappearing from the eye; œdema of legs as yesterday; febrile excitement not so great; pulse 88; bowels not open during the night, though there was considerable tenesmus. Mist. Oleag. stopped, and

R. Ol. Ricini, \bar{z} j.

4. Pulse 116, frequent and thrilling; dyspnœa; bowels open twice during night; tongue has returned to its natural condition; anorexia almost complete. Heart—Bellows sound sharper than before, (churning or sawing motion with a creaking sound heard now and then,) extending to arch of aorta. Both sounds confused. Respiration feeble at the posterior inferior portion of the right lung, in consequence of effusion. Some tympanitis; more œdema in legs. The patient has had a peculiar form of fever, which has existed for some days, probably owing to aortitis.

R. Emp. Episp. over heart.

5. Complains of no pain; pulse 80, not as thrilling as yesterday; skin moist; respiration more easy, though there is still slight dyspnœa. Countenance improved in appearance. Bowels open four times during the night, but no tenesmus.

Treatment continued.

6. Patient as yesterday. Pulse 120, full and resisting; respiration 22, high and laboured, with dilatation of the nostrils; bowels open three times last night, and once this morning; slept well during the day, but restless at night. Has pain over both kidneys.

R. Dry Cups over kidneys, followed by sinapisms.

Pulse at night 108. Bowels open five times to-day.

R. Dry Cups repeated, and pediluvium.

7. Oppression very great; pulse 116; skin moderately warm; respiration 40, feeble at the posterior lower portion of right lung; abdomen more tense; bowels open three or four times this morning. Action of the heart feeble; sounds not materially altered; flatness over the cardiac region more extended.

R. Spts. Æth. Sulph. Comp. \bar{z} j. Ter in die.

R. Pulv. Doveri. Nocte.

In the evening found the patient much worse; tongue protruded to the left side, and unable to speak; immediately previous to this state he had complained of universal pain; no oppression; pulse quick and thrilling.

R. Dry Cups to nucha and temples, and blister to nucha; sinapisms to the inside of the extremities; and Ol. Terebinth. enema.

8. Insensible; respiration stertorous.

Died to-day.

It may here be remarked, that the patient had not evinced even the ordinary brightness of intellect during the course of his sickness. But, on the contrary, answered the questions put to him in a single phrase. There was not, however, any marked cerebral symptoms evinced till the day of his death and the evening previous.

Autopsy.

Upon opening the skull, found the dura mater more adherent than natural, and $\frac{3}{4}$ ss. of serum effused in the great cavity of the arachnoid. Upper surface of brain covered with yellow lymph-like exudation beneath; arachnoid at the anterior surface, one-twelfth of an inch in thickness, and dipping in between the convolutions. The posterior third has the arachnoid brightly injected, the yellow lymph disappearing. By moderate effort the arachnoid membrane may be detached from the surface of the brain. Lymph was also found moulded in the different depressions, on the anterior surface of the encephalic mass. Veins are only slightly injected. Where the surface of the brain was freed from lymph, the cortical portion was found firm, and only a little more pale than natural.

On the right hemisphere the appearances were similar to those on the left.

The ventricles contained about $\frac{3}{4}$ ijss. of serum, of a turbid appearance. The membrane lining the ventricles was slightly opaque; the central portion was softened and diffuent. At the junction of the plexus choroides of the two sides a small body of medullary matter was found about the size of a filbert, much softened.

Meninges of the cerebellum at the anterior portion contain lymph similar to the cerebrum, in extent of surface about one and a half inches, and about two in breadth. The investing membrane of the medulla oblongata was injected. The fissures of Sylvius contain also small portions of lymph, similar to that on the upper surface of brain. The remainder of the brain was slightly injected throughout. The general mass of the brain was more flaccid and paler than usual, and an odour, of a peculiar alkaline character, was emitted on opening the cranium.

Liver.—Nutmeg coloured cyrrhosis, and fatty in colour and consistence.

Lung.—Slight cadaveric congestion; opaque at the upper surface.

Kidneys.—Are one-half larger than natural; portions of both injected of a bright red colour, extending through the cortical substance, and then disposed so as to include the opaque yellow granules which replace it. The portion of the substance which is natural, contrasts strongly with the morbid appearances before mentioned.

On the external portion, the bloodvessels surround the acini in a very marked manner.

Heart.—Is of twice the usual size; hypertrophy of both ventricles.

The pericardium contained about $\frac{3}{4}$ ss. of serum, and there were also slight adhesions between it and the heart.

The right ventricle was enlarged to one-third more than its usual size. In it a firm coagulum, with well organised, extremely vascular points. The coagulum in the left ventricle was much softer than the right.

The left ventricle was dilated to double its natural size, and its walls in the centre were seven-twelfths of an inch in thickness. The one lip of the mitral valve was natural, the other shrunk and contracted, leaving the orifice patescent. The lining membrane of the ventricle was opaque.

The aorta at its arch was healthy, smooth and natural.

The right ventricle was one-third of an inch in thickness, firm, and the internal surface smooth. Valves of the pulmonary artery flexible but reddened. The right auricle was dilated.

A large coagulum is attached to the semilunar valves. From one of them arises a concretion of a reddish tint, composed partly of calcareous matter, partly of the cheesy substance often found in aortitis. This mass involves two of the valves, the structure of which is totally destroyed. It is thirteen lines in length, and at the extremity half an inch in width, and projects a third of an inch into the calibre of the tube at its base, encroaching on the third valve, which, as just mentioned, is the point of normal structure to which it is attached. It is obvious that the opening must have been extremely contracted, and hence offered a rough surface to the passage of the blood; while on the other hand the closing of the valves was entirely out of the question. The valve which was least diseased offers an ulceration upon its surface with inverted edges, and is semi-cartilaginous and much reddened.

[*Remarks.*—There are many points of much interest connected with the case, which would have been still more numerous if the notes had been more full.

At the time of the entrance of the patient he was obviously labouring under advanced disease of the kidneys; his urine was highly albuminous, and the complexion was of the peculiar tint usually found in renal dropsy. The patient was dull of intelligence, and spoke only a half intelligible German patois, so that it was impossible to obtain even a tolerable history of the case; and there were no means of knowing whether the disease of the heart or kidneys had first occurred. The cardiac affection, at the time of his entrance, was apparently limited to the patescence of the mitral valve, and roughening and thickening of the semilunar. The ulceration and morbid concretion were more recent changes, and I have no doubt originated with the attack of fever, which was referred to aortitis, partly from the character of the pulse, but much more from the great increase in the morbid sounds of the heart, especially the second sound, which was rendered extremely harsh, from the regurgitation of the blood at the orifice of the aorta, and its meeting with the rough and projecting mass.

Not the least interesting fact in the case, was the latent arachnitis. This is not very unusual in cases of extensive lesion of the kidneys; the functional disorder, which is the usual termination of such cases, gradually passes into inflammation. The inflammation at the orifice of the aorta was probably owing to the same cause—the cachexia produced by the renal disease. Dr. Chevers, in a recent number of Guy's Hospital reports, lays great stress upon this form of aortitis, and the peculiar condition of the body in which it occurs. The termination of inflammation of this character is almost necessarily fatal, and is, of course, beyond the reach of the ordinary modes of treatment. Erysipelas accompanied the earliest symptoms of the inflammation, confirming the analogy pointed out by Dr. Chevers, between erysipelas and the asthenic forms of aortitis.—W. W. G.]

ANALECTA.

A writer in the Medical Times, Dr. Clay, of Manchester, has published an interesting communication on the value of ox-gall as a medicinal agent. Not having the journal before us, we extract a portion of the paper as republished in the Medico-Chirurgical Review, trusting that some of our readers will subject the remedy to further trial.

So far as these experiments have progressed, the use of ox-gall in some diseases is of the most satisfactory character, presenting us with an excellent and peculiarly effective corrective for the many and various derangements of the alimentary canal, unlike many of our best medicines, inasmuch as in whatever cases it is given, if no benefit results, no harm is ever experienced from it. Its action on the system is not as a purgative, but as a mere solvent of the *material* contained within the intestinal canal, producing no excitement to propel, but by liquifying the mass, facilitating its excretion. It is also a tonic—and in children, to a moderate extent, a diuretic—but less so in an adult. It appears to have a peculiar and specific action on all that variety of diseases connected with derangements of the digestive organs, and from the proofs I have advanced, I believe it worthy of extensive trial. The preparation I have been in the habit of giving, is simply the recent gall of the ox slowly evaporated to the consistence of an extract, and afterwards made into pills, as in the formulæ already given; but if it is sufficiently firm, I prefer the simple extract made into pills without any addition; and if the gall be *recent*, it has very little smell, but an intensely bitter taste. The gall-bladder of a moderate sized ox will afford as much extract as will make one hundred four grain pills, and is an article both cheap and easy to procure. Trusting it may be further tested by others, I leave it to the profession, confidently recommending it to their notice.

The value of opium as a remedy in disease is acknowledged by all practitioners, and it would be much more generally given if it were not for the constipation resulting from its application, by the general check it is supposed to give to the operation of the secreting organs. How this is accomplished is not so easily explained; physiologists admitting, that though digestion may progress during sleep, secretion is but very slowly carried on. The action of opium, then, may not be direct on the secretory organs, but by producing artificial sleep, *through that sleep* produce the check to the secretions, generally attributed to the direct effect of the opium itself.

Perspiration, however, may be adduced as a contradiction to this, but it may with equal propriety (as it has been frequently) be denied that perspiration *is a secretion*; this (perhaps properly called) exudation being most certainly and frequently produced by sleep, it also follows that the perspiration attributed to various preparations of opium, “pulv. Doveri, &c.” may not be the direct effect of the preparation used, but the consequence of the sleep produced by it. Dr. Holland, in his “Notes and Reflections,” observes, “the fear of confining the bowels, and checking the secretions, constantly present to the mind of the practitioner, prevents the adequate use of a medicine, having the power of mitigating pain, relieving spasm, procuring sleep, and producing perspiration, &c.”

In whatever view the action of opium is considered, it must be acknowledged that if its action *can* be secured without the disadvantages generally attributed to it, its value as a remedial agent must be very considerably increased, and the frequent objection to its use be done away with. That such *can* be *positively* accomplished by the combination of ox-gall with it, the cases here given fully prove. And supposing the secretion of bile in the system to be deficient in quality, or quantity, originating disease from whatever cause, there cannot remain a doubt but that an artificial supply of bile must be attended with the best possible results; that *substitute* acting in the full capacity of the original secretion, until such secretion be either amended or restored. Ancient pathologists, particularly of the Hippocratic school, attributed considerable importance to bile: and perhaps moderns have too much neglected the results arising from its redundancy or deficiency in the animal system. What I have hitherto advanced has been chiefly to illustrate the deficiency of bile in the alimentary canal; but before I conclude this subject, it may be necessary to observe very briefly, that diseases not unfrequently arise from the bilious secretion being too great in quantity, and what necessarily follows, depreciated in quality; hence those obstinate and long-continued diarrhœas, and cases of jaundice, *accompanied with purging (which are very distinct from the common run of cases of jaundice,)* being the consequence of mechanical obstruction in the biliary ducts, always accompanied with constipation, little or no bile passing along the alimentary canal. But I have frequently observed cases of jaundice, and more in infancy than adult ages, where no such obstruction existed, and where motions evidently indicated a full sufficiency of bilious secretion. Jaundice arising from obstruction in the biliary ducts *may*, after the mechanical obstruction has been removed by emetics, &c., be much benefitted by the exhibition of gall internally, which not only assists the bowels in passing off the excrementitious mass, but improves the secretion of bile so as to prevent the formation of gall-stones in future. But those cases accompanied with lax motions, as well as long standing cases of obstinate diarrhœa, would rather be injured than benefitted by it. The only resource in such is to lessen the bilious secretion, and I know of no one object more efficient in checking that secretion, and exciting perspiration, than small and frequent doses of crude opium, with warm clothing. If once the exudation by the skin becomes apparent, in such cases it may very certainly be predicated that the secretion of bile is lessened, and the case progressing towards a cure. I am convinced there exists a remarkable sympathy between the secretion of the liver and the exudation by the skin, either of which being lessened increases the other, and vice versa.

Parasites in Aphthæ.—Dr. Vogel, of Munich, has observed vegetable parasites on the mucous membrane of the mouth and œsophagus of an infant a fortnight old, which died of aphthæ extending from the mouth to the cardia. These aphthæ, examined under a glass magnifying two hundred and twenty times, presented the appearance of genuine *conservæ*, similar to those found by Schonlein in impetigo. Some of these parasites were of a round shape, some with, some without, a central nucleus; some isolated, others grouped together; others again consisted of scattered filaments, swollen at certain points, sometimes in the middle, at others at the extremities.

All of them were colourless, and unaffected by water, ammonia, or acetic acid.—*Provin. Med. Journ.* June 25, 1842. *From Gazette de Medicale.*

Counter-Irritants.

The following formulæ have been communicated by Dr. Turnbull to the Editors of the *Pharmaceutical Transactions*.

Tinctura Capsici Concentrati.

R. Capsici Baccarum, \mathfrak{z} iv.
Spiritus Vini Rect., \mathfrak{z} xij.

Macera per dies septem et cola. (It may also be made with advantage by displacement.)

This concentrated tincture is used as an external application, and is found to be a powerful rubefacient and counter-irritant, for which purpose the ordinary tincture of capsicum is not sufficiently potent.

VERATRIA, dissolved in this tincture, acquires increased activity; the capsicum apparently facilitating its absorption into the skin. Four grains of veratria, dissolved in an ounce of the concentrated tincture of capsicum, will be found as powerful in its effect as twelve or fifteen grains dissolved in alcohol.

Pulvis Aluminis et Capsici.

R. Aluminis Sulphatis, partes tres.
Tinct. Capsici concentrati, partem unam.

Misce et sicca.

A very small quantity of this powder, applied to the tonsils, is found more efficacious, in some cases, than an alum and capsicum gargle.

Unguentum Ipecacuanhæ.

R. Pulveris Ipecacuanhæ, \mathfrak{z} ij.
Olei Olivæ, \mathfrak{z} ij.
Adipis, \mathfrak{z} ss.
M. Ft. unguentum.

Unguentum Emetinæ.

R. Emetinæ, g. xv.
Sp. Vini. Rect. q. s.
Adipis, \mathfrak{z} ss.
M. Ft. unguentum.

Dr. Turnbull states, that he has found this ointment particularly efficacious as a rubefacient in pulmonary and rheumatic affections, producing little or no pain or inconvenience to the patient.—*Medico-Chirurgical Review.* July, 1842.

Case of Twins with Union of the Bodies of the Children: By Dr. SKIPTON.—This was the case of a woman, about thirty years of age, and who was pregnant for the second time. On examination, after the labour had made considerable progress, one head was found protruded, and in the recess, between the chin and breast, a second was in progress of expulsion, which last was pressed so firmly on the throat of the former, as to produce

great congestion, the colour of the skin changing from a reddish hue to a deep purple, and the tongue being forced beyond the lips. *Both children were expelled together*; no cry was uttered by either, nor was any movement made by them; nor could pulsation at the precordial region be detected. The mother made a good recovery. The children, both males, were united by the chest anteriorly, the union extending a few inches towards the side. The abdominal parietes of both children were deficient below the umbilicus; the viscera, having consequently no support, hung down in front. There was only one source of nourishment from the parent, and one liver, which was larger than usual. There were two hearts, *enclosed in one pericardium*; that supplying the child whose head was born first, was the smaller; the other about the normal size. Each had the usual number of hands and feet, and the organs of generation in both were perfect.—*British and Foreign Medical Review*. July, 1842. *From Dublin Med. Press*, No. 177. May 25, 1842.

On Benzoic Acid in Urinary Disorders. By JOHN SMITH SODEN, Surgeon to the United Hospital, Bath.—In the last volume of the *Medico-Chirurgical Transactions*, there is a paper by Mr. Ure on gouty concretions, in which he states that most unequivocal proofs have been afforded him of the efficacy of benzoic acid in correcting and removing certain disordered states of the urine in individuals prone to attacks of gravel. In the "*Provincial Medical and Surgical Journal*," of February 16, 1843, Dr. Walker, of Huddersfield, published an account of the advantage he had witnessed from the use of benzoic acid, combined with balsam of copaiba, in certain affections of the urinary organs. Dr. Walker's statements induced me to adopt his practice, and the first favourable opportunity of testing its efficacy occurred a few days after I had read Dr. Walker's paper, when I was summoned to an elderly gentleman who had long suffered from irritable bladder and enlarged prostate. Three years ago I saw this patient on account of retention of urine. I was then informed that, for a considerable time, he had frequent inclination to pass urine, though able to void only a small quantity at each call, and that the urine was generally loaded with mucous secretion. I found enlargement of the prostate, but had no difficulty in passing a catheter; I emptied his bladder, and the urine drawn off contained a considerable quantity of muco-purulent deposit. The catheter was passed daily, and the bladder washed out with warm water; the hip-bath, with rest, and the means ordinarily adopted in such cases, soon mitigated the severity of this attack. The patient acquired the power of introducing the catheter himself, and has used the instrument, I believe, daily ever since that period. I occasionally felt the instrument strike against a calculus, but the state of the prostate, and advanced age of the individual, rendered an operation inadvisable. During the three last years he has taken most of the remedies generally recommended on such occasions, and thinks the uva ursi has been most serviceable to him. He had not, for a long time, been under the care of a medical man, but trusted entirely to his own management, till I was sent for in March last, in consequence of aggravation of suffering. He showed me the urine he had recently passed and drawn off. It deposited a large quantity of muco-purulent discharge. He complained much of the irritability of the bladder. I injected warm water, and, as on former occasions, he had derived more benefit from the exhibition of uva ursi, than from any other reme-

dy, I prescribed that medicine, together with the use of the hip-bath, and a suitable regimen ; as no material relief ensued at the end of three days, I directed the benzoic acid in the following form :—Benzoic acid, one drachm ; Balsam of copaiba, half an ounce ; Yolk of egg, enough to form a mixture with seven ounces of camphor mixture. Two tablespoonfuls to be taken thrice a-day.

I never witnessed anything equal to the efficacy of this medicine ; the urine became clearer after the first dose, and in two days it was perfectly free from mucous deposit ; the irritability of the bladder was lessened, and in four days the patient resumed his self-management. I did not feel the calculus during this attendance. The gentleman left Bath about six weeks after this period. I saw him a few days before his departure ; he told me that he was as well as usual, that he continued to use the catheter, but that the urine was quite clear, and that when he observed any tendency to mucous deposit he had recourse to the mixture, and always with success.

The result of this case induced me to give the medicine a trial at the United Hospital, and our intelligent house surgeon, Dr. Morgan, has been kind enough to give me the heads of four cases in which it has been exhibited at that institution.

Case I.—A man aged thirty-five, applied for admission as an out-patient, complaining of frequent desire to make water, which has existed for the last month ; the urine deposits mucous sediment ; the patient has no gonorrhœa, and refers his disorder to being much exposed to cold and wet. On passing a catheter the urethra was found perfectly natural, but there was some slight hæmorrhage after the urine had been evacuated ; has some pain in the loins ; pulse rather strong ; was at first cupped on the loins, and ordered aperients ; and then diosma and the pareira brava, with opiates, were given in succession. After having attended for three weeks, he complained of some pain in the joints, for which he was ordered colchicum, and though it greatly relieved the rheumatic affection, produced no beneficial effect upon the state of the bladder. Mr. Soden saw him, and directed the mixture, with benzoic acid and balsam of copaiba. He found benefit after using it for two days, and in ten days was perfectly well.

Case II.—A married woman, apparently in good health, was admitted as an out-patient, stating that she had frequent desire to make water ; the urine depositing on cooling (she says) a whitish sediment ; urine slightly acid ; she has been under medical treatment at intervals during the last six months, but without deriving any benefit from the means adopted. The mixture, with benzoic acid and balsam of copaiba, was ordered immediately, and she was discharged, cured, in three weeks.

Case III.—A man, aged fifty, has been under the care of two surgeons for a month, owing to having suffered from irritability of the bladder. He has now frequent desire to make water ; a small quantity of blood is occasionally passed with the last drop of urine ; some ropy mucous is deposited in the urine, which is slightly acid, though it very soon becomes ammoniacal on standing ; there is some irritation at the glans penis ; on sounding, no stone could be detected. He was ordered the benzoic acid mixture, but only continued his attendance for three visits (eight days,) during which time great relief was afforded, and as he has not since applied at the hospital, he is most probably well.

Case IV.—A man, aged thirty-seven, after a severe attack of gonorrhœa, which appeared, by his description, to have been attended with acute inflam-

mation of the bladder, was admitted an out-patient. He complains of being obliged to make water very frequently, having to get up six or eight times in the night to empty his bladder; has much pain in front of the pubis; some ropy mucous is deposited in the vessel, after the urine has been standing some time. After trying several other remedies without advantage, the benzoic acid mixture was ordered, from the use of which he experienced great relief in two or three days, and at the end of ten days no mucous was discovered in the urine.

The most remarkable circumstance connected with the exhibition of this medicine, as far as my experience goes, is its decided efficacy in diminishing, and in some instances, completely suppressing the muco-purulent deposition in the urine, which is so prominent a symptom in most cases of affection of the bladder. I am aware that a doubt may be very fairly entertained whether this effect is to be attributed to the benzoic acid, or to the balsam of copaiba, or to their combination. In the few cases which I have just related I was induced to give both of these medicines, from the advantage which had been derived from their use in Dr. Walker's practice. It is, however, very desirable to ascertain the effect of benzoic acid alone in similar cases, more particularly as balsam of copaiba so frequently disagrees with delicate stomachs. I shall therefore not fail to avail myself of future opportunities of trying it, uncombined with other active ingredients; and the hope of inducing my brethren of the Association to endeavour to establish the real worth of a remedy that promises to be serviceable in a very formidable and distressing class of complaints, has been my principal motive in occupying so much of the time of the meeting.—*Prov. Med. Journ.*, July 30.

The Basement Membrane.—It had been ascertained by Henle, that the wall of an uriniferous tube is composed of two elements—a transparent membrane and an epithelial covering; to Mr. Bowman is due the merit of having shown that these elementary parts exist wherever true mucous membrane is found, and that skin is similarly compounded.

The primary and most essential of these elements is the transparent membrane. It affords perhaps the simplest and most beautiful example of a membranous expansion which can be met with in the body. It forms the basis on which the epithelial element is deposited; and to it, the mucous membrane owes whatever cohesive power, strength, or other physical property it possesses. Hence, Mr. Bowman has given it the appropriate name of *basement membrane*. It is homogeneous, structureless, and perfectly transparent; the highest powers of the microscope cannot detect in it any definite arrangement of particles. The transparent tube that envelopes the fleshy elements of the primitive fasciculus of voluntary muscle, presents precisely the same character, as does the wall of the nerve tubule, the posterior layer of the cornea, and the capsule of the crystalline lens. The basement membrane does not admit vessels into its texture. They ramify on its deep or parenchymal surface, and are supported by the submucous cellular tissue, or by a soft cystoblastema, which seems to be derived from recently effused liquor sanguinis, and from which, probably, the basement membrane and the epithelium have their nutrition and growth.—*Ibid*, from *London Medical Gazette*.